

WHAT IS CLAIMED IS:

1. An ultrasonic puncture needle comprising:  
a sheath which is inserted into a treatment tool  
insertion channel of an ultrasonic endoscope; and  
a needle tube for being inserted into tissue within the  
body cavity through the sheath, which includes a plurality  
of staggered-array doughnut-shaped recesses over a  
predetermined range on the surface of the tip portion of the  
needle tube from the portion near the tip of the needle tube.
2. An ultrasonic puncture needle according to Claim 1,  
wherein the plurality of doughnut-shaped recesses are  
arrayed so as to be spread in a radial pattern from the tip  
of the needle tube.
3. An ultrasonic puncture needle according to Claim 1,  
wherein the multiple doughnut-shaped recesses are formed  
using a laser apparatus or an electric discharge machining  
apparatus.
4. An ultrasonic puncture needle according to Claim 3,  
wherein the multiple doughnut-shaped recesses are formed  
using a laser apparatus or an electric discharge machining  
apparatus under positioning control set so that the

doughnut-shaped recesses have no adverse effects on an cutting-tip portion forming the needle tube due to overlap of the doughnut-shaped recesses and the cutting-tip portion.

5. An ultrasonic puncture needle comprising a needle tube which is to be inserted into a treatment tool insertion channel of an ultrasonic endoscope so as to be inserted into tissue within the body cavity, wherein the needle tube includes a plurality of recesses over a predetermined range on the surface of the tip portion thereof from the tip thereof on the back side of an cutting-tip portion.

6. An ultrasonic puncture needle according to Claim 5, wherein the plurality of recesses are arrayed so as to be spread in a radial pattern from the tip of the needle tube.


7. An ultrasonic puncture needle according to Claim 5, wherein the plurality of recesses are formed at positions such that overlap of the recesses and the cutting-tip portion does not occur.

8. An ultrasonic puncture needle according to Claim 6, wherein the plurality of recesses are formed at positions such that overlap of the recesses and the cutting-tip portion does not occur.

9. An ultrasonic puncture needle according to Claim 5, wherein the plurality of recesses are formed in a doughnut shape using a laser apparatus or an electric discharge machining apparatus.

10. An ultrasonic puncture needle according to Claim 6, wherein the plurality of recesses are formed in a doughnut shape using a laser apparatus or an electric discharge machining apparatus.

11. An ultrasonic puncture needle according to Claim 7, wherein the plurality of recesses are formed in a doughnut shape using a laser apparatus or an electric discharge machining apparatus.

12. An ultrasonic puncture needle comprising:   
a puncturing portion formed with a suitable length at the tip of the ultrasonic puncture needle; and  
a tube portion formed in the shape of a tube at the rear end of the puncturing portion, wherein the puncturing portion is formed of an cutting-tip portion and a tube-shaped portion formed as an extension of the tube portion, which includes ultrasonic-reflection means on the surface of the tip portion thereof.

13. An ultrasonic puncture needle according to Claim 12, wherein the ultrasonic-reflection means comprises a plurality of doughnut-shaped recesses formed and arrayed so as to be spread over a predetermined range on the surface of the tip portion in a radial pattern from the tip of the tube portion on the back side of the cutting-tip portion.

14. An ultrasonic puncture needle according to Claim 13, wherein the plurality of doughnut-shaped recesses are formed using a laser apparatus or an electric discharge machining apparatus.

15. An ultrasonic puncture needle according to Claim 14, wherein the plurality of doughnut-shaped recesses are formed at positions such that overlap of the recesses and the cutting-tip portion forming the needle tube does not occur, using a laser apparatus or an electric discharge machining apparatus.

16. An ultrasonic puncture needle according to Claim 12, wherein the ultrasonic-reflection means comprises a plurality of recessed portions formed and arrayed so as to be spread in a predetermined range on the surface of the tip portion in a radial pattern from the tip of the tube portion

on the back side of the cutting-tip portion.

17. An ultrasonic puncture needle according to Claim 16, wherein the plurality of recessed portions are formed at positions such that overlap of the recessed portions and the cutting-tip portion does not occur.

18. An ultrasonic puncture needle according to Claim 16, wherein the plurality of recessed portions are formed in a doughnut shape using a laser apparatus or an electric discharge machining apparatus.

19. An ultrasonic puncture needle according to Claim 17, wherein the plurality of recessed portions are formed in a doughnut shape using a laser apparatus or an electric discharge machining apparatus.